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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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BLAKELY SOKOLOFF TAYLOR & ZAFMAN
12400 WILSHIRE BOULEVARD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER

FAULK, DEVONA E

ART UNIT PAPER NUMBER

2644

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/981,389

Applicant(s)

GRAUMANN, DAVID

Examiner

Devona E. Faulk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19-26 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-10 and 12-17 is/are rejected.
- 7) ☒ Claim(s) 6, 11 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11/17/2001 regarding claims 1,7 and 12 are have been fully considered but they are not persuasive. The applicant asserts on page 9 that prior art Birchfield fails to teach a reflector structured and arranged to reflect acoustic waves. The applicant asserts as she did in the office action that Birchfield teaches of determining the direction to a human speaker (paragraph 0038; the human being the acoustic source). Further more Birchfield extensively teaches of detecting human speech. A human speaker has ears, which read on "at least one reflector having an acoustically reflective surface structured and arranged to reflect the acoustic wave". The claims as recited are met by Birchfield. The examiner is maintaining her rejections regarding claims 1,7 and 12.

2. Applicant's arguments filed 11/17/2001, with respect to the rejection(s) of claim(s) 6,11 and 18 under 103(a) have been fully considered and are persuasive. Therefore, the rejections of claims 6,11 and 18 have been withdrawn.

3. Applicant's arguments, filed 11/17/2001, with respect to the rejection(s) of claim(s) 17 under 103 (a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Birchfield.

4. Applicant's arguments filed 11/17/2001, with respect to claims 19 and 23 have been fully considered and are persuasive. The rejections

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of claims 19-26 have been withdrawn. Claims 19-26 are in allowable form.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-5, 7-10, 12-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Birchfield et al. (U.S. Patent Application 2002/0097885).

Regarding claim 1, Birchfield discloses an acoustic source localization system and method comprising a first microphone (302A; Figure 3) located at a first location to detect acoustic waves at the first location; a second microphone (302B; Figure 3) located at a second location to detect the acoustic waves at the second location; at least one acoustically reflective surface to reflect the acoustic waves (paragraph 0038); an acoustic analysis device to detect and

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analyze acoustic waves (330. paragraph 0039; Figure 3); a processing device to determine a spatial location of a source of the acoustic waves (340; paragraph 0042).

Regarding **claim 2**, Birchfield teaches that in some applications it is desirable to determine the direction of a human speaker (paragraph 0038). A human has ears, and the ears read on at least one acoustically reflective surface having an irregular shape. Therefore, all elements of claim 2 are comprehended by claim 1.

Regarding **claim 3**, Birchfield teaches that in some applications it is desirable to determine the direction of a human speaker (paragraph 0038). A human has ears, and the ears read on at least one acoustically reflective surface shaped like a human pinna. Therefore, all elements of claim 3 are comprehended by claim 1.

Regarding **claim 4**, Birchfield teaches that in some applications it is desirable to determine the direction of a human speaker (paragraph 0038). A human has ears, and the ears read on at least one acoustically reflective surface having low acoustic absorption properties. Therefore, all elements of claim 4 are comprehended by claim 1.

Regarding **claim 5**, Birchfield discloses a processing device that directs an observation device in a direction of the spatial location of the source of the acoustic waves (paragraph 0072).

Regarding **claim 7**, Birchfield discloses an acoustic source localization system and method comprising using a first microphone (302A; Figure 3) to detect acoustic waves at the first location; using

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a second microphone (302B; Figure 3) to detect the acoustic waves at the second location; using at least one acoustically reflective surface to reflect the acoustic waves in a direction of the first location and the second location (paragraph 0038); analyzing the acoustic waves (330. paragraph 0039; Figure 3); determining a spatial location of a source of the acoustic waves (340; paragraph 0042). The method is inherent in the functionality of the system.

Regarding **claim 8**, Birchfield teaches that in some applications it is desirable to determine the direction of a human speaker (paragraph 0038). A human has ears, and the ears read on at least one acoustically reflective surface having an irregular shape. Therefore, all elements of claim 2 are comprehended by claim 7.

Regarding **claim 9**, Birchfield teaches that in some applications it is desirable to determine the direction of a human speaker (paragraph 0038). A human has ears, and the ears read on at least one acoustically reflective surface having low acoustic absorption properties. Therefore, all elements of claim 4 are comprehended by claim 7.

Regarding **claim 10**, Birchfield discloses directing an observation device in a direction of the determine spatial location of the source of the acoustic waves (paragraph 0072).

Regarding **claim 12**, Birchfield discloses an acoustic source localization system and method comprising a computer-readable medium (RAM; paragraph 0037); a computer-readable program code, stored on the computer-readable medium (paragraph 0037); having instructions to use

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a first microphone (302A; Figure 3) to detect acoustic waves at the first location; to use a second microphone (302B; Figure 3) to detect the acoustic waves at the second location; reflect the acoustic waves in a direction of the first microphone and second microphone (paragraph 0038); analyze the acoustic waves (330. paragraph 0039; Figure 3); determining a spatial location of a source of the acoustic waves (340; paragraph 0042).

Regarding **claim 13**, Birchfield teaches that in some applications it is desirable to determine the direction of a human speaker (paragraph 0038). A human has ears, and the ears read on wherein at least one acoustically reflective surface is utilized to reflect the acoustic waves. Therefore, all elements of claim 13 are comprehended by claim 12.

Regarding **claim 14**, Birchfield teaches that in some applications it is desirable to determine the direction of a human speaker (paragraph 0038). A human has ears, and the ears read wherein on at least one acoustically reflective surface having an irregular shape. Therefore, all elements of claim 2 are comprehended by claim 13.

Regarding **claim 15**, Birchfield teaches that in some applications it is desirable to determine the direction of a human speaker (paragraph 0038). A human has ears, and the ears read on wherein at least one acoustically reflective surface has low acoustic absorption properties. Therefore, all elements of claim 4 are comprehended by claim 13.

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Regarding **claim 16**, Birchfield discloses wherein the computer-readable program code includes instructions to direct an observation device in a direction of the determine spatial location of the source of the acoustic waves (paragraph 0037; paragraph 0072).

Regarding **claim 17** Birchfield discloses the computer-readable program code includes instructions to set a first delay to delay an output of the first microphone and a second delay to delay an output of the second microphone, based upon the spatial location of the source of the acoustic waves (paragraph 0039).

Claim Objections

7. **Claims 6,11 and 18** objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Allowable Subject Matter

8. **Claims 19-26** allowed.

9. The following is a statement of reasons for the indication of allowable subject matter:

Regarding **claims 19 and 23**, Prior art Birchfield (U.S. Patent Application 2002/0097885) discloses emitting acoustic waves from some location, using a first microphone to detect the acoustic waves at a first location and using a second microphone to detect the acoustic waves at a second location. Prior art Taguchi (U.S. Patent 4,937,868)

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discloses a speech analysis-synthesis system that includes a table storing phase angles corresponding to sinusoidal wave data. Prior art Shiraishi (JP 10172090) discloses detecting the presence or the absence of the vehicle, which is discriminated by the phase difference of signals outputted from two sound detectors M1 and M2. The prior art Burks et al. (U.S. Patent 6,014,510) discloses the concept of creating a phase table having a period for each phase with its associated phase tag (column 5, lines 24-33). Prior art Piergiorgio Svaizer (*Acoustic Source Location in a Three-Dimensional Space Using Crosspower Spectrum Phase*) discloses using a microphone array to locate a dominant acoustic source in a given environment. The prior art or combination thereof fails to disclose "associating phase angles with the known frequencies at each of the predetermined spatial locations, wherein variation between associated phase angles and predetermined phase angles for the known frequencies is indicative of a predetermined spatial location". As such the prior art or combination thereof fails to disclose a method of creating a phase signature table or a phase signature table creation device comprising as claimed.

Claims 20-22 and claims 24-26 are allowed due to dependency on claims 20 and 23 respectively.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Devona E. Faulk whose telephone number is 571-272-7515. The examiner can normally be reached on 8 am - 5 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



SINH TRAN
SUPERVISORY PATENT EXAMINER

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